

REMARKS

Claims 1-9 and 11-16 are now pending in the application. Claims 1, 9, 11, and 16-18 are currently amended. Claim 10 has been cancelled. The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the amendments and remarks contained herein.

REQUEST FOR CONSIDERATION OF IDS REFERENCE

It has come to our attention that the references (JP 10-0603850, JP05-197793, JP 2000-123148, JP 10-154220, JP 08-185503 and Kazuhiro Fukui et al. "Facial Feature Point Extraction Method Based on Combination of Shape Extraction and Pattern Matching") on the IDS Form 1449, filed with the application on December 20, 2001, were not initialed by the Examiner indicating that the references have been considered. We have enclosed a copy of the IDS Form 1449 for your convenience.

We would appreciate your initialing the references and returning a copy of the initialed IDS Form 1449 to our office at your earliest opportunity.

REJECTION UNDER 35 U.S.C. § 102 AND § 103

Claims 1-4, 6 and 16 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Kado et al. (U.S. Pat. No. 5,995,639): This rejection is respectfully traversed.

Claims 7-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kado et al. in view of Chen et al. (U.S. Pat. No. 6,792,134). Claims 11, 5 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kado et al. in view of

Odaka et al. (U.S. Pat. No. 6,035,054). Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kado et al. in view of Eriksson *Eye-tracking for Detection of Driver Fatigue*. Claim 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kado et al. in view of Eriksson *Eye-tracking for Detection of Driver Fatigue* and further in view of the Applicants admitted prior art. These rejections are respectfully traversed.

The claimed invention solves the problem that, it is difficult to detect an eye position from a face image taken under near infrared light because the contrast between an iris portion and a sclera portion of the eye is low.

In Kado, the brightness correction is performed to prevent misjudgment due to a difference in the position of the light source in photographing. For this object, the brightness of each patch is lowered or raised. Specifically, the brightness of a patch whose normal is closer to the old direction of the light source is lowered, and the brightness of a patch whose normal is closer to the new direction of the light source is raised. By such brightness correction, misjudgment can be prevented under different illumination conditions (col.7, lines 23-52).

Furthermore, as shown in Fig.14 of Kado, a brightness correcting section 19 is installed following feature amounts extracting section 16. That is, the brightness correction is performed after the feature extracting.

On the contrary, the brightness correction of the claimed invention is increasing the contrast between a sclera portion and an iris portion on a face image taken under near infrared light so as to detect an eye position from the face image with high precision.

Also, according to the claimed invention, the brightness correction, whose object is to improve the precision of detecting an eye position, is performed before the eye position detecting.

Accordingly, the subject matter claimed as Claims 1 and 16 of the present application is entirely different from Kado in the timing and specific processing of the brightness correction.

In addition, near infrared light is often used as illumination for personal authentication using image processing to prevent discomfort of the user due to the dazzle. We comment on the case where at the iris recognition system having a 2-camera structure shown in FIG.1 of the present application, an eye position is detected from an image taken under near infrared light using the W camera 1. In this case, using conventional method leads to low probability of detecting the precise eye position, which reduces possibility of taking an enlarged iris image using the N camera 3. Consequently, there's little possibility that iris recognition succeeds.

On the other hand, by using the claimed invention, the brightness correction is performed to increase the contrast between a sclera portion and an iris portion before template matching using brightness gradient. Thus, the eye position is precisely detected from the face image taken under near infrared light.

As discussed above, the amended Claims 1 and 16 are not anticipated by Kado, and are not obvious from the combination of Kado and the other references.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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By: Gregory A. Stobbs
Gregory A. Stobbs
Reg. No. 28,764

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

GAS/kk